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digestion experiments, in which artificial digestion is resorted to in order to determine the value of feeding-stuffs.

The whole report is one of which the board of control may well feel proud, and we trust that the director and his corps of able assistants may be enabled to continue with increased facilities the lines of investigation so excellently begun.—*Charles E. Bessey.*

SCHMIDT'S MAMMALIA IN THEIR RELATION TO PRIMEVAL TIMES.¹—Although Dr. Schmidt, who has died since the publication of this book, was not a special student of the mammals, he was the author of a useful work on comparative anatomy, and well fitted by his general studies for preparing the present interesting sketch. The book is mainly of interest to the American student for its discussion of the fossil mammals of the old world. It is very much behind the times as regards our knowledge of American extinct mammals, as much light has within two or three years past been thrown on the subject by the publications of Cope and of Marsh, particularly the recent generalizations of the former author, which appeared in this journal during 1884 and '85. The extract from Schmidt's book, which appeared in our department of geology and palæontology, shows his mode of treatment of the subject. Equally interesting is his account of the evolution of the pigs, the deer, and especially the oxen. The discussion as to the ancestry of the whales is an interesting one, Schmidt favoring Flower's view that they are an offshoot from the ungulate mammals.

As to the origin of the monkeys and apes, Schmidt suggests that the American group may have descended from the Insectivora, and the old world forms, with the apes, from the Pachydermata, certainly a novel view. As to the origin of man from such a source, he thinks we are justified in postponing any such discussion, "as the study of anthropology can in no way boast of having made any definite progress during the last ten years."

GEIKIE'S CLASS-BOOK OF GEOLOGY.²—This is an excellent piece of work, both literary and scientific. In very readable form, with most excellent illustrations, paper and press-work; it is a pleasure to turn over the pages. Everything has been done to make the book and subject attractive to the beginner. We have looked with most care over the early part of the volume, for in physical geology the author is at his best. His treatment of rocks and minerals is excellent, better than anything we know of published in this country; it is so clear simple and attractive. The woodcuts being also unusually well drawn and engraved.

We are a little disappointed with the fourth part on historical

¹ D. Appleton & Co., New York. \$1.50.

² *Class-book of Geology.* By ARCHIBALD GEIKIE, LL.D., F.R.S. London, Macmillan & Co., 1886. 12mo, pp. 516.

geology. It is scarcely adapted for use in this country, though valuable for reference. The illustrations are mainly of European fossils, and the treatment is rather meager and dry compared with the other portions of the book; the classification adopted is in some points not fresh, and the entire treatment is not what is now wanted.

The *Eophyton linnæanum* is figured as though it were a plant; the *Ceratiocaris* is still referred to the phyllopod Crustacea; the Tunicata are still retained with the brachiopods in that mysterious collection called "Molluscoidea." These, however, are slight defects. But palæontology cannot be set forth in its truest light by one who has not done practical work in biology and palæontology.

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GENERAL NOTES.

GEOLOGY AND PALÆONTOLOGY.

THE PLAGIAULACIDÆ OF THE PUERCO EPOCH.—Three species of this marsupial family have been thus far detected in the beds of the Puerco. These are *Ptilodus mediævus* Cope, Vol. III, Report U. S. Geol. Surv. Terrs., p. 173, Pl. XXIII*d*, Fig. 1; *P. trovessartianus* Cope, l. c., p. 737, AMERICAN NATURALIST, 1885, 493; *Neoplagiaulax americanus* Cope, AMER. NATURALIST, 1885, p. 493. Of these the last-named species is the largest, the lower jaws representing an animal of the probable size of the Norway rat. I am now able to add a fourth species to this list in a second species of *Neoplagiaulax*, much larger than the *N. americanus*, and hence the largest species of the family known. It is established on an entire inferior fourth premolar. The length of the base of this tooth is one third greater than that of the corresponding tooth of the *N. americanus*, and there are fifteen keel-crests on the side of the crown, while there are but seven in the *N. americanus*. The outline of the crown is of the elongate and moderately convex character of that of the *N. americanus*, and thus not so elevated as in our species of *Ptilodus*. The irregularity in the outline of the base of the crown is less than in the other species, and the diameter of the roots is subequal. The anterior base of the crown is not excavated for the fourth premolar as in the species of *Ptilodus*. Length of base of crown 16^{mm}; elevation at middle, 8^{mm}. The discovery of species of this family of increased size was to have been anticipated, in view of the dimensions of the *Thylacoleo carnifex*, which was no doubt descended from the Plagiaulacidæ. I call the animal *Neoplagiaulax molestus*.—E. D. Cope.

"LIST OF THE GEOLOGICAL FORMATIONS OF SPITZBERGEN."—The article with the above title, printed in the last December number of the AMERICAN NATURALIST from a manuscript which